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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/000,008	03/26/1998	Ole Ploug	196-1142	4641

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EXAMINER

LIU, HAN L

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/000,008

Applicant(s)

PLOUG ET AL.

Examiner

Han Lieh Liu

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 1998.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 19, 22, 23, 27 and 35 is/are rejected.
- 7) ☒ Claim(s) 18, 20, 21, 24-26 and 28-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Receipt is acknowledged of papers submitted for "Amendment" on 01/15/1998. This amendment cancels claims 1 – 16 and adds claims 17 – 35. The amendments are intended to delete multiple dependencies from the application. Amendment papers have been placed of record in the file. The amended claims are examined in this office action.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Germany 195 25 852.5, filed on 07/15/1995.

This application is a 371 of PCT/DK96/00302 filed on 07/04/1996.

Claim Objections

3. Claim 17 is objected to because of the following informalities:

The recitation of "with respect to which the cylinder drum" is not clear. It is suggested to state "with respect to the cylinder drum".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Masuda (USPN 5086689).

Masuda discloses an axial piston pump in Fig. 1, comprising a cylinder drum (3), a plurality of cylinders and pistons (cylinders 41 with pistons 4, and pistons 7, 8 where corresponding cylinders are not labeled), a swash plate (6), the swash plate being rotatable with respect to the cylinder drum (3), at least one of the cylinders comprising a working cylinder (41) having an associated working piston (4), and at least one other cylinders comprising a balance cylinder (not labeled) having associated balance piston (7 and 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda (USPN 5086689) as applied to claim 17 above, and further in view of Smith (USPN 4815358).

With regard to claim 19, Masuda discloses the invention substantially as claimed in base claim 17. Masuda, however, does not specifically disclose to use a resilient ring between the working piston and the cylinder drum. The use of piston ring for sealing is known in the art. Sealing ring, without further structural details, is not patentable by itself. Furthermore, Smith

discloses to use seal (46) on piston (44) for reciprocal sliding movement of the cylinder (42), column 2 lines 47 – 50. Therefore, it would have been obvious to one having ordinary skill in the art of piston sealing at the time the invention was made to advantageously adapt a resilient ring seal for the piston and its respect cylinder bore as illustrated by Smith

With regard to claim 22, Masuda, in view of Smith, discloses the invention substantially as claimed in base claims 17 and 19. Furthermore, Smith shows in Fig. 1, that the resilient member (46) is located in a circumferential groove (not labeled). Therefore, it would have been obvious to one having ordinary skill in the art of piston sealing at the time the invention was made to advantageously position the resilient ring inside a circumferential groove for proper holding into the place.

6. Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda (USPN 5086689) in view of Smith (USPN 4815358), and further in view of Kobayashi et al. (USPN 3657970).

Masuda, in view of Smith, discloses the invention substantially as claimed in base claims 17 and 19. Masuda, in view of Smith, however, does not specifically disclose to have resilient ring positioned between cylinder drum and valve plate. Kobayashi et al. disclose to have fluid sealing on the co-acting surfaces of the cylinder barrel (5) and the valve plate (14), column 3 lines 56 – 60. Therefore, it would have been obvious to one having ordinary skill in the art of seals for a rotating cylinder at the time the invention was made to advantageously employ a sliding seal as discussed by Kobayashi et al.

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda (USPN 5086689) as applied to claim 17 above, and further in view of Wolff et al. (USPN 4583921).

Masuda discloses the invention substantially as claimed in base claim 17. Masuda, however, does not specifically disclose that pistons have bias springs. Wolff et al. teach that the plungers (14) are biased by means of a coil spring (20). Therefore, it would have been obvious to one having ordinary skill in the art of seals for piston control for a swash plate type pump at the time the invention was made to advantageously use a biasing coil spring to positively secure the motion of the piston to a positive control of its movement inside the cylinder as illustrated by Wolff et al.

Allowable Subject Matter

8. Claims 18, 20, 21, 24 – 26 and 28 – 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Bobier (USPN 4269574), Randa (USPN 3479963), Garnier (USPN 3075472) and Budzich (USPN 3046906).

Bobier discloses a variable displacement type fluid device having a rotatable cylinder barrel with each end of a plurality of pistons being disposed for reciprocation within cylinder bores in the cylinder barrel. The cylinder barrel has cylinder ports successively communicating

each of the cylinder bores with arcuate inlet and outlet passages formed in a valve face disposed at one end of the cylinder barrel.

Randa et al. disclose a fluid device having a rotating cylinder barrel, a port block and a valve plate between said cylinder barrel and the port block. The device includes intake and discharge ports in the valve plate including a seal or piston assembly surrounding said ports and responsive to fluid pressure to provide a seal between the valve plate and the port block and pressure responsive surfaces providing a control force to maintain sealing between the valve plate and the rotating cylinder barrel.

Garnier discloses a variable flow pump of the drum piston type, i.e. having pistons sliding in bores provided in a rotor. A balancing piston disposed in a bore in the housing and constantly applied against the rear face of the cam by delivery pressure in balancing the thrust exerted on the cam by the pump pistons.

Budzich discloses means for counteracting centrifugal force moments in rotary cylinder barrel longitudinally reciprocating piston type. The balancing piston has grooves for sealing.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Han Lih Liu whose telephone number is 703-305-0860. The examiner can normally be reached on Monday - Thursday 7:30 to 16:30.

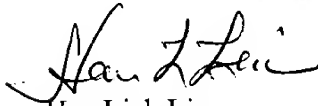
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 703-308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9302.

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Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the receptionist whose telephone number is 308-0861.

A handwritten signature in cursive script, appearing to read "Han Lieh Liu".

Han Lieh Liu

December 9, 2003